FINAL DRAFT

OU10 PROPOSED ACTION MEMORANDUM FOR THE BUILDING 443 UNDERGROUND FUEL OIL TANKS #3 AND #4 ACCELERATED RESPONSE ACTION

Prepared for:

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LIST OF ACRONYMS

AOC	Area of Contamination
ARARs	Applicable or Relevant and Appropriate Requirements
BGS	below ground surface
CDPHE	Colorado Department of Public Health and the Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CHWA	Colorado Hazardous Waste Act
DOE	Department of Energy
DOT	Department of Transportation
EPA	Environmental Protection Agency
GAC	Granular Activated Carbon
IA	Industrial Area
IAG	Interagency Agreement
IHSS	Individual Hazardous Substance Site
kg	kilogram
km	kilometer
L	liter
MeCl	methylene chloride
µg	microgram
mg	milligram

LIST OF ACRONYMS, (Continued)

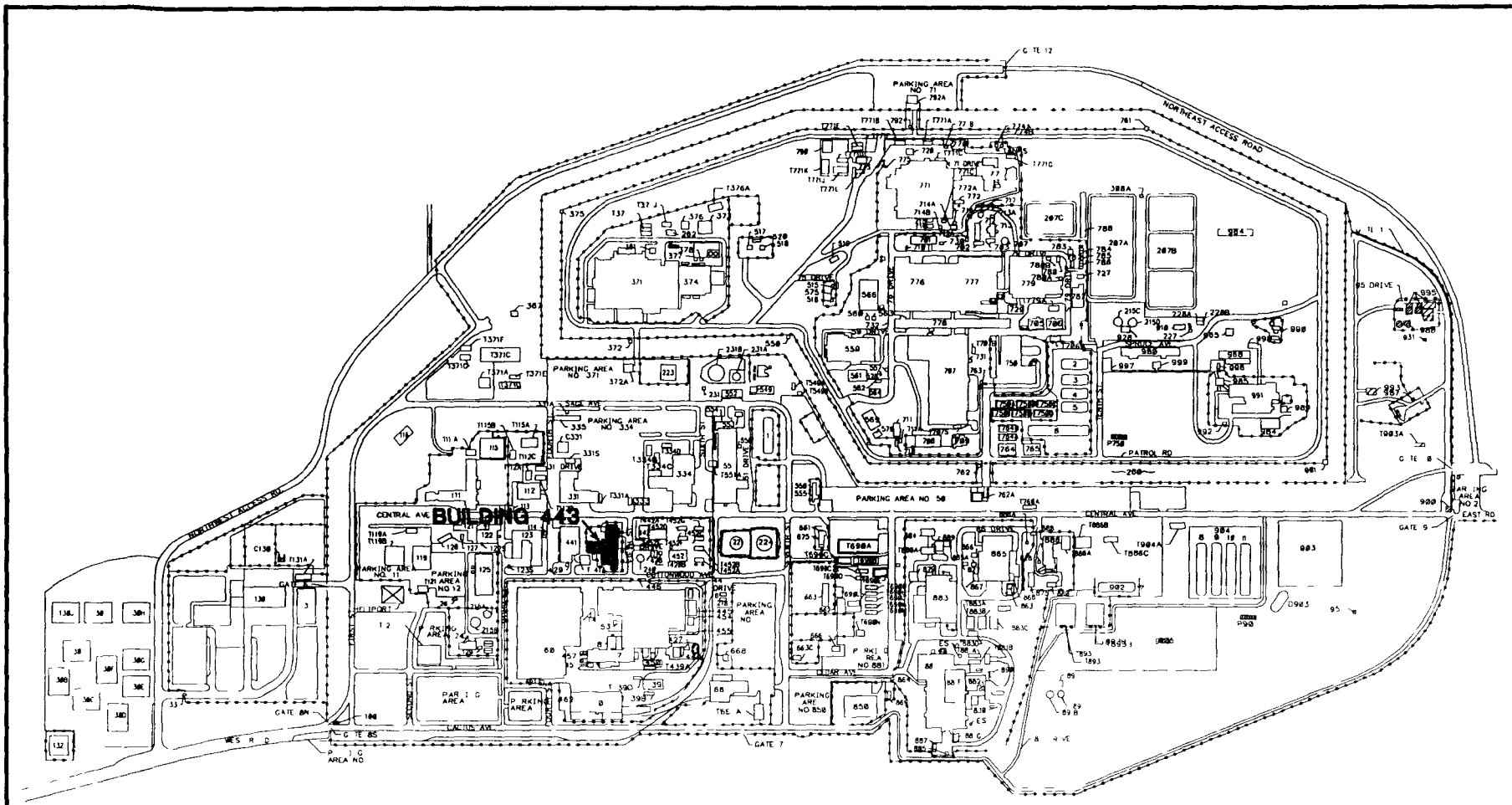
mg/L	milligram per liter
mg/kg	milligram per kilogram
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEPA	National Environmental Policy Act
NPL	National Priorities List
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
NIOSH	National Institute of Occupational Safety and Health
PAM	Proposed Action Memorandum
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RFI	RCRA Facility Investigation
RI	Remedial Investigation
ROD	Record of Decision
TCA	1,1,1,-trichloroethane
TCE	trichloroethene
TCFM	trichlorofluoromethane
TPH	total petroleum hydrocarbons
VOCs	volatile organic compounds

FINAL DRAFT PROPOSED ACTION MEMORANDUM FOR THE BUILDING 443 UNDERGROUND FUEL OIL TANKS #3 AND #4 ACCELERATED RESPONSE ACTION

1.0 PURPOSE AND SCOPE

The purpose of this Proposed Action Memorandum (PAM) is to request and document approval of the Department of Energy's (DOE's) proposed removal of two underground fuel oil tanks (Tanks #3 and #4) located adjacent to Building 443 Tank #4 has been identified as Individual Hazardous Substance Site (IHSS) 129 at the Rocky Flats Environmental Technology Site (RFETS) located in Golden, Colorado IHSS 129 is located within Operable Unit 10 (OU10), just east of Building 443 (Figure 1-1) Tank #3, although not included in IHSS 129 or OU10, is adjacent to Tank #4, and has been incorporated into this PAM because of its age and potential past association with Tank #4 The tanks are currently out of service and are suspected to be breached Five pipelines, believed to be partially wrapped in asbestos, are connected to Tanks #3 and #4 On September 28, 1994, Tank #3 contained oil-phase liquid, water-phase liquid, and sludge, Tank #4 contained water-phase liquid and oil/sludge In addition, Tank #4 is believed to have received approximately 55 gallons of spent solvents every two years between 1967 and 1986

The objective of this accelerated response action is to significantly reduce potential risks to the public posed by total petroleum hydrocarbons (TPH) and volatile organic compounds (VOCs) present in the IHSS by removing the contaminant source This response action assumes that no radionuclides are present above background in the vicinity of Tanks #3 and #4 In October 1994, Radiological Engineering personnel at RFETS deemed the area to be a Non-Radiological Materials Management Area



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ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

GOLDEN, COLORADO

FIGURE 1–1
BUILDING 443 LOCATION MAP

DATE 08/31/94	DR GFD	CKD TJW
SCALE NOTED	DWG NO 05397–45	

The proposed action includes the following

- conducting subsurface soil sampling to better define the extent of contamination,
- excavating the soil to expose the tanks, making an effort to generate vertical profiles of the soil as it is excavated so the soil can be returned to its original location,
- removing both tanks, piping, ancillary equipment (vaults, controls, etc), and metal straps,
- containerizing the water and oil-phase liquid encountered in the excavation, all decontamination (decon) water, and the tanks' contents,
- temporarily staging the soil encountered in the excavation within the area of contamination (AOC),
- containerizing excavated soil saturated with oil-phase liquid (if encountered),
- decontaminating and packaging the tanks and metal straps for off-site recycling (believed to be unlikely) or disposal,
- decontaminating the equipment and workers,
- recycling or disposal (if recycling is not feasible) of the sludge, oil-phase contents of the tanks, oil-phase liquids encountered in the excavation, tanks, and metal straps,

- treating the water-phase contents of the tanks, the water encountered in the excavation, and decon water with an oil/water separator, an absorbent filter system, and a mobile granular activated carbon (GAC) system (purchased for the project) on-site, afterwards, the water will be disposed of at the Building 374 Evaporator,

- packaging and treating/disposing of the asbestos, miscellaneous piping, ancillary equipment, containerized soil (if encountered), and other construction waste at an approved off-site facility,

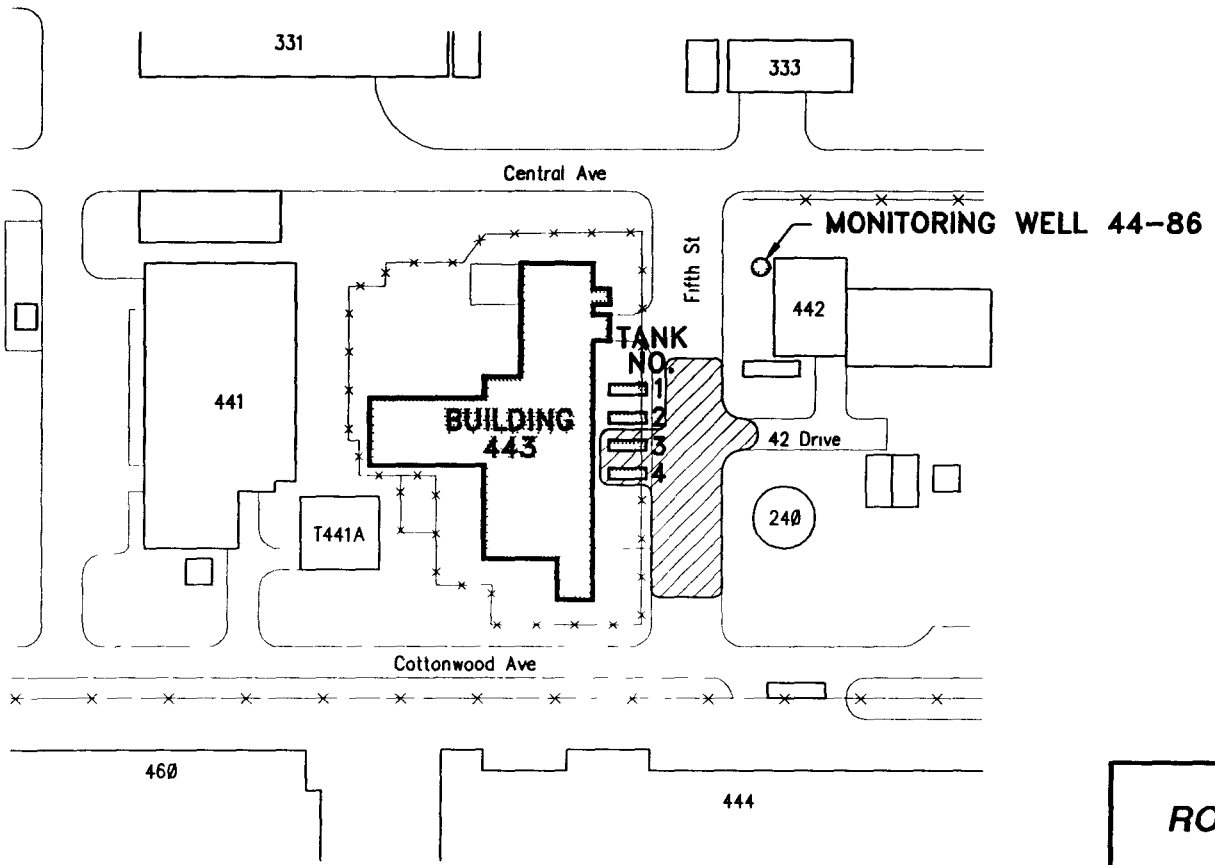
- abandoning the shoring supports surrounding the excavation *in-situ* cutting them off six inches below ground surface (BGS),

- leaving the concrete saddles (used to ballast the tanks) *in-situ*, and

- reclaiming the site

All excavated soil will be temporarily containerized within the AOC (the Environmental Protection Agency [EPA], 1989), the extent of which is presented on Figure 1-2 Every effort will be made to segregate the clean soil from the potentially-contaminated soil Vertical profiles of the excavated soils will be generated as the soil is excavated to assist in returning it back to its original location

Prior to disposal or recycling, all waste streams will be managed in accordance with all applicable hazardous waste management requirements Since this accelerated response action is being conducted under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and treatment will occur on-site, the DOE claims an exemption from all federal, state, and local permitting requirements applicable to this accelerated response action Any future remediation, if necessary, or other applicable closure



LEGEND:

Fence

Proposed Area of Contamination

N

Scale (Approx)

Ø 200Ø feet

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FIGURE 1-2
PROPOSED AREA OF CONTAMINATION

DATE 09/30/94	DR GFD	CKD TJW
SCALE NOTED	DWG NO 05397-54	

requirements will be addressed under the final record of decision (ROD) for the OU10 The lateral extent of the excavation is anticipated to be 40 feet in the north-south direction and 30 feet in the east-west direction The vertical extent of the excavation is anticipated to be 15 feet BGS Post-excavation sampling will be conducted to characterize the soil on the perimeter of the excavation

The proposed action is consistent with the long-term remedial goals of OU10 and IHSS 129 because it eliminates source-term contamination This response action does not constitute the final remedy for this IHSS The results of this action will support the objectives of the Phase I Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI)/CERCLA Remedial Investigation (RI) (collectively, RFI/RI) and any other potential closure requirements for OU10 by providing additional environmental characterization data The data obtained from this action will be incorporated into further evaluation and the ROD for OU10

This PAM is being initiated pursuant to the Interagency Agreement (IAG) as a process to streamline the implementation of the CERCLA --specifically under The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 Code of Federal Regulations [CFR] 300 415)-- while being consistent with the RCRA/Colorado Hazardous Waste Act (CHWA). This action is being conducted as an accelerated response action pursuant to a letter dated June 23, 1994 from Steven W Slaten, IAG Project Coordinator for the DOE to Martin Hestmark of the EPA Region VIII, and Gary Baughman of the Colorado Department of Public Health and the Environment (CDPHE) (Slaten, 1994) This action is proposed as an accelerated response action because the chemicals of concern inside the tanks (both are suspected to be breached) may contain RCRA hazardous constituents and pose a potential threat to human health and the environment as contaminant sources The accelerated response action can be implemented within six months

This PAM has been prepared in accordance with the above-referenced letter (Slaten, 1994) and the proposed amendment Paragraph I B.10 of Attachment 2 to the IAG As indicated in

the proposed language, this action is consistent with the CERCLA and RCRA/CHWA Paragraph I B 10 b of the language lists the elements a PAM should contain This includes (1) a brief summary of the data for the site; (2) an explanation of the proposed action, (3) waste management considerations, (4) a brief explanation of how the proposed action is consistent with long-term remedial action objectives, and (5) an implementation schedule with a completion date Paragraph I B.10 b further stipulates that, if appropriate, the PAM shall also contain a brief summary of risks, and/or proposed performance standards, and identify all Applicable or Relevant and Appropriate Requirements (ARARs) specifically related to the proposed action Each of these elements is incorporated into the PAM A description of each section of the PAM, including the appropriate element contained in the section areas follows

- Section 2 0 Site Background - presents a brief summary of the known data for the site
- Section 3 0 Potential Risks to Public Health and the Environment - contains a brief summary of potential risks which the accelerated response action is intended to mitigate
- Section 4 0 Proposed Action - includes an explanation of the proposed action, a brief summary of ARARs and performance standards specifically related to the proposed action, an explanation of the consistency of the action with long-term objectives, waste management considerations, a draft implementation schedule, and an approximate completion date
- Section 5 0 Expected Change in the Situation Should the Action be Delayed or Not Taken - describes the potential results of taking no action
- Section 6 0 References - provides a list of reference documents used to prepare the PAM

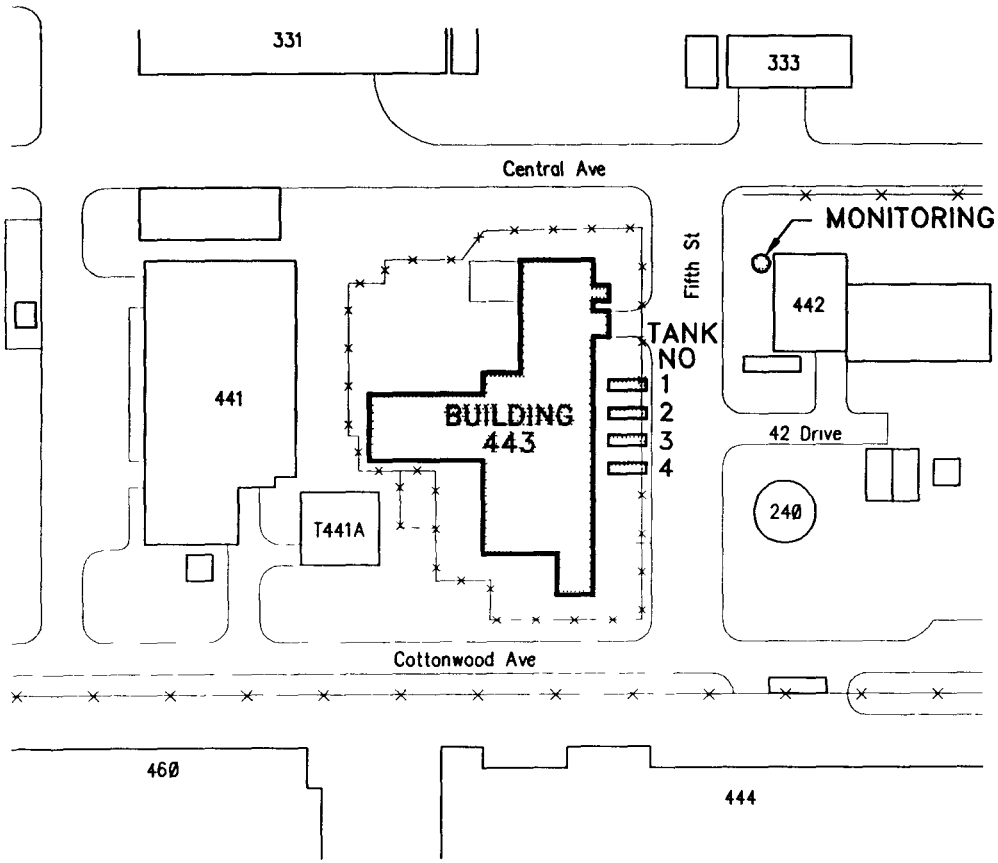
2.0 SITE BACKGROUND

RFETS is a government-owned, contractor operated facility that is part of the nationwide DOE nuclear weapons complex Until January 1992, RFETS was operated as a nuclear weapons research, development, and production complex. RFETS fabricated nuclear weapons components from plutonium, uranium, beryllium, and stainless steel Support activities included chemical recovery, purification of recyclable transuranic radionuclides, and research and development of metallurgy, machining, nondestructive testing, coatings, remote engineering, chemistry, and physics RFETS is also currently designated as a RCRA hazardous waste treatment/storage facility RFETS is in transition from a defense production facility to a facility that will be used for such future missions as environmental restoration, waste management, and eventual decontamination and decommissioning

The IAG, signed by the DOE, EPA, and CDPHE in 1991, grouped IHSSs at RFETS into 16 OUs The IAG requires the investigation and remediation of OU10 as well as the other OUs at RFETS The IAG is currently under revision and renegotiation by the DOE, EPA, and CDPHE The future document resulting from these renegotiations is called the Rocky Flats Cleanup Agreement (RFCA)

2.1 SITE DESCRIPTION

OU10, titled Other Building Closures, is one of six OUs included in the Industrial Area (IA) IHSS 129, Building 443 #4 Fuel Oil Tank, is 1 of 16 IHSSs in OU10 and 1 of 4 fuel oil tanks historically used to supply No. 6 fuel oil to the Building 443 steam plant boilers (Figure 2-1) The Building 443 steam plant provides heat via natural gas to other buildings at RFETS These tanks were used as a backup system in the event of a natural gas loss The tanks are located approximately 16 feet east of the building The tanks are oriented longitudinally in an east-west direction (Figure 2-1) Tanks #1 and #2 were installed in 1952, they actively support the Building 443 Steam Plant and data suggest that their integrity is sound



LEGEND.

Fence

N

Scale
(Approx)

Ø 200 feet

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GOLDEN, COLORADO

FIGURE 2-1
BUILDING 443 TANK LOCATION
DETAIL MAP

DATE 08/31/94	DR GFD	CKD TJW
SCALE APPROXIMATE	DWG NO 05397-46	

Tanks #3 and #4 were installed in 1967 The tanks are constructed of carbon steel and are 11 feet in diameter by 27 feet long with a storage capacity of approximately 19,000 gallons each The top of Tanks #3 and #4 are approximately four feet BGS (DOE, 1992a)

Five pipelines, believed to be partially wrapped in asbestos, are connected to Tanks #3 and #4 Four steel supply and return lines connect each of the four tanks to Building 443 These four lines consist of a steam line to supply the heaters located inside each tank, a return condensation line from the heaters, a line to pump fuel oil to Building 443, and a return line for oil being circulated from the Building 443 boilers An additional aboveground line connects two supply tanks (Tanks #221 and #224) south of Building 551 to the four tanks The portion of this line that is connected to Tank #4 is an aboveground steel pipe (DOE, 1992a)

2.2 PHYSICAL LOCATION AND LAND USE

The population, economics, and land use of the areas surrounding RFETS are described in a 1989 vicinity demographics report by the DOE (DOE, 1990) This report divides general use of areas within 0 to 10 miles (0 to 16 kilometers [km]) of RFETS into residential, commercial, industrial, parks and open spaces, agricultural and vacant, and institutional classifications, and considers current and future land use near RFETS

The majority of residential use within 5 miles (8 km) of RFETS is located immediately north and southwest of Standley Lake Single-family dwellings are located in unincorporated areas immediately east and south of RFETS Commercial development is concentrated near the residential developments north and southwest of Standley Lake, and around the Jefferson County Airport approximately 3 miles (4 8 km) northeast of RFETS Industrial land use within 5 miles (8 km) of the plant is limited to quarrying and mining operations Open space land is located northeast of RFETs near the city of Broomfield, and in small parcels adjoining major drainages and small neighborhood parks in the cities of Westminster and Arvada Standley

Lake is surrounded by Standley Lake Park Irrigated and non-irrigated croplands, producing primarily wheat and barley, are located northeast of RFETS near the cities of Broomfield, Lafayette, and Louisville, north of the RFETs near Louisville and Boulder, and in scattered parcels adjacent to the eastern boundary of the plant Several horse operations and small hay fields are located south of the RFETS The demographics report characterizes much of the vacant land adjacent to RFETS and the reservoirs as rangeland (DOE, 1990)

Future land use in the vicinity of RFETS most likely involves continued suburban expansion and increased density of residential, commercial, and perhaps industrial land use in the areas The expected trend in population growth in the vicinity of RFETS is addressed in the DOE demographics study

2.3 PHYSICAL ENVIRONMENT AND ECOLOGY

The land surface in the vicinity of IHSS 129 slopes gently to the northeast Ground water occurs in unconfined conditions in alluvial deposits varying up to 50 feet thick under the secured area, including IHSS 129 Based upon data collected from Well 44-86 (Figure 2-1), the depth-to-water varies seasonally from approximately 3 5 to 10 feet BGS and at times may be up to 20 feet BGS In August 1994, the depth-to-water in Well 44-86 was measured at 7 6 feet BGS

The alluvial deposit, the Rocky Flats Alluvium, is composed of poorly sorted, coarse, bouldery gravel in a sand matrix with lenses of clay, silt, and sand Bedrock, the Arapahoe Formation, underlies the alluvium and is composed of sandstones and claystones

The physical environment in the vicinity of IHSS 129 consists of gravel with sporadic patches of weeds growing through the gravel Although wetlands and surface water features occur within OU10, there are no floodplains or wetlands at or near IHSS 129 In addition, no

endangered wildlife species will be affected by the Tanks #3 and #4 accelerated response action.

2.4 RELEASE INTO THE ENVIRONMENT OF A HAZARDOUS SUBSTANCE, POLLUTANT, OR CONTAMINANT

The following sections provide a summary of the materials historically stored in Tanks #3 and #4, the reported releases from the tanks, and the investigation of the contaminated media More detailed information is provided in the OU10 Work Plan (DOE, 1992a)

2.4.1 Materials Stored in Building 443 Tanks #3 and #4

Tank #3 stored No. 6 fuel oil from 1967 until 1991 when the heating coil malfunctioned There is no documentation that Tank #3 was used to store any substance other than No 6 fuel oil However, OU10 personnel have suggested that historical pumping between Tanks #4 and #3 may have occurred (Rockwell, 1988 and DOE, 1992a)

Between 1967 and 1984, Tank #4 primarily stored No 6 fuel oil, but also held diesel oil and a mixture of water and compressor oil During the 1970s, Tank #4 was used to store a total of approximately 19,000 gallons of No 2 diesel oil over the course of several years From 1984 to 1986 Tank #4 was used to store a mixture of water and compressor oil The mixture was placed in the tank at a rate of approximately 30 gallons per day Solvents used to clean equipment and for cleaning up fuel oil spills were also added to Tank #4 at various times from 1967 to 1986 Approximately 55 gallons of solvents were used in Building 443 every two years, which represents a total of approximately 520 gallons of solvents which could have been placed in Tank #4

On September 28, 1994, approximate measurements were collected from the contents of Tanks #3 and #4 Tank #3 contained 21 gallons of oil-phase liquids, 10,707 gallons of

water-phase material, and 7,300 gallons of sludge Tank #4 held 9,040 gallons of water-phase liquid and 311 gallons of oil/sludge The water-phase liquids in Tanks #3 and #4 are suspected to have entered through a breach in each tank, although the exact location of each hole is unknown (DOE, 1992a)

2.4.2 Historical Discovery of Contaminated Media

On March 6, 1986, a four-foot deep fence post hole excavated on the eastern edge of Tank #4 partially filled with a material with the appearance of compressor oil On March 9, 1986, No 6 fuel oil was discovered in another fence post hole nearby (DOE, 1992b) As a result of these observations, the use of Tank #4 was discontinued Approximately 12,900 gallons of material was subsequently removed from the tank and processed at an approved off-site facility

2.4.3 Previous Investigation of Contaminated Media

Following the observation of material in the fence post hole east of Tank #4, a trench approximately 3 feet wide by 4 feet deep by 100 feet long was excavated east of the four fuel oil tanks Dark fuel oil stains were observed in the southernmost 30 feet of the trench immediately east of Tank #4 No free product was observed in the trench The trench was subsequently backfilled

Samples of the material stored in Tank #4 and the material that appeared in the fence post hole east of Tank #4 were collected and analyzed for VOCs and TPH Samples from Tank #4 were collected from the oil-phase and the water-phase material in the tank Results of the analysis by an independent off-site laboratory are provided in Table 2-1 and indicate the presence of VOCs

TABLE 2-1

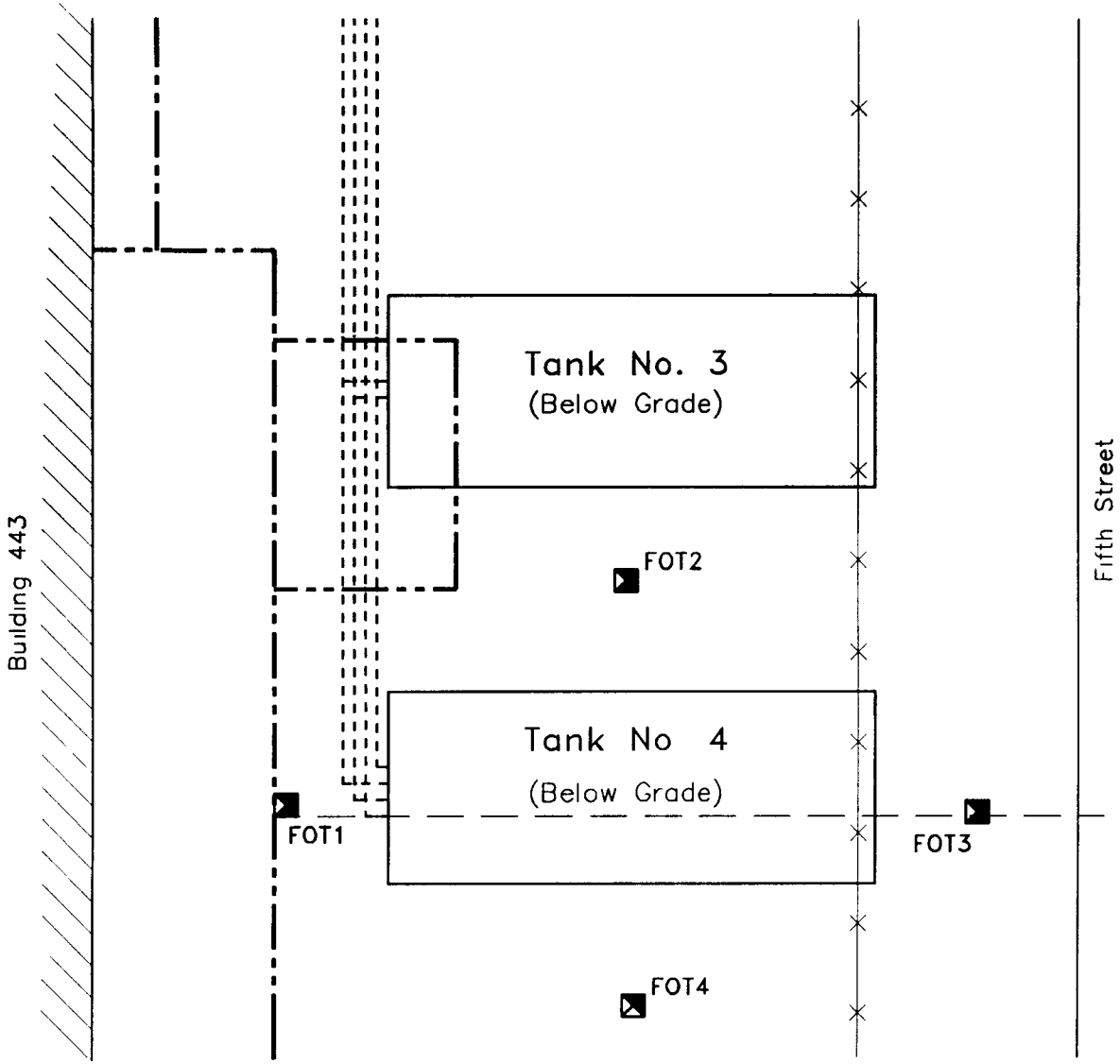
Summary of Off-Site Laboratory Analyses: Samples of Contents of Tank #4 and Liquid in the Fence Post Hole in IHSS 129 Collected on March 7, 1986

CONSTITUENT	OIL-PHASE LIQUID FROM TANK #4 (mg/L)	WATER-PHASE LIQUID FROM TANK #4 (mg/L)	MATERIAL OBSERVED IN THE FENCE POST HOLE (mg/L)
Methylene Chloride	140	25	14
1,1,1,-Trichloroethane (TCA)	17,000	40	32
Trichlorofluoromethane (TCFM)	<5	17	29

Source Rockwell (1988)

It is unknown as to how many samples were collected for off-site laboratory analysis Two samples from each of the oil-phase and water-phase contents of Tank #4 were also analyzed at an on-site laboratory On-site laboratory analysis indicates the presence of 1,1,1-trichloroethane (TCA) in the oil-phase liquid at levels of 58 and 65 milligrams per liter (mg/L), and in the water-phase liquid at 10 7 and 27 5 mg/L. On-site laboratory analysis also detected trichloroethene (TCE) in the water-phase liquid at trace level (less than 10 micrograms per liter [µg/L] and at 25 µg/L) (Rockwell, 1988)

In 1988, four soil borings were reportedly drilled to a depth of either 10 feet below the water table or to a maximum depth of 30 feet BGS, whichever level was reached first Samples for laboratory analysis were collected at five-foot intervals The actual depth of these borings and sampling points was not identified (Rockwell, 1988) The locations of the soil borings are presented on Figure 2-2 as FOT1 through FOT4 Results of the soil sample analyses are presented on Table 2-2 and indicate the presence of VOCs and metals above detection limits



LEGEND

- Overhead Piping
- Underground Piping
- Fence
- Previous Soil Sample Location
- Organics Detected
- Metals Detected
- Anions Detected

NOTES

1 Radionuclides Not Analyzed

2 Tank and sampling locations are from Rockwell International, 1988 Closure Plan Building 443 #4 Fuel Oil Tank U S DOE April Ø5, 1988 Locations have not been verifed by facility drawings

N

Approximate Scale

Ø 1Ø 2Ø feet

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FIGURE 2-2
LOCATION OF 1988 SOIL BORINGS

DATE Ø9/Ø1/94	DR GFD	CKD TJW
SCALE NOTED	DWG NO Ø5397-53	

TABLE 2-2
Summary of IHSS 129 Soil Sampling Activities Conducted in 1988

Constituent	Detected Concentration Range at Soil Borehole Locations			
	FOT1	FOT2	FOT3	FOT4
VOCs and Semi-VOCs(µg/kg)				
Methylene chloride	4 0J, 14B	65J, 430	1100	57J, 60J
Acetone	18			370J
1,1,1-Trichloroethane		340		
Benzene	3 0J, 5 0J		570	78J, 180J
Toluene	10, 11	71J, 180J	1700	170J, 320
Ethylbenzene	33, 40	140J, 200J	1600	360, 490
Total Xylenes	35, 42	330, 1500	4700	2000, 3000
2-Methylnaphthalene	7800J			
Pyrene	7100J			
Benzo(a)anthracene	3600J			
Chrysene	8100J			
Metals and Other Inorganics (mg/kg)				
Aluminum	8100	3900	9300	3500
Arsenic			2 4	
Beryllium	1 3			
Calcium	4900	3200	1700	
Cadmium	3.6	1 5	3 4	
Chromium	8 4	6 8		4 3
Copper	12	6 4	9 6	

TABLE 2-2 (Continued)

Summary of IHSS 129 Soil Sampling Activities Conducted in 1988

Constituent	Detected Concentration Range at Soil Borehole Locations			
	FOT1	FOT2	FOT3	FOT4
Metals and Other Inorganics (mg/kg), Continued				
Iron	12000	6200	9100	3700
Lead	14	4 8	38	570
Mercury	0 47	0 45	0 28	0 18
Magnesium	1800		1300	
Manganese	110	67	88	42
Nickel	19		8 7	
Potassium	1100			
Vanadium	23	16	22	
Zinc	30	13	20	16

Notes
1 - Locations provided on Figure 2-2
J - Present below detection limit
B - Present in blanks
Data not validated

SOURCE DOE, 1992 Final Phase I RFI/RI Work Plan, Rocky Flats Plant, Other Outside Closures (Operable Unit 10) Volume II - Appendix C May 1992

Organics detected and their respective highest concentrations included

- TCA at 340 µg/kilogram (kg),
- methylene chloride (MeCl) at 1,100 µg/kg,
- benzene at 570 µg/kg;
- toluene at 1,700 µg/kg;
- ethylbenzene at 1,600 µg/kg, and
- total xylenes at 4,700 µg/kg

Except for TCA, the highest concentrations of VOCs were detected in FOT3 TCA was only detected in FOT2 Although metals did not originated from the tanks, their respective highest concentrations (in milligram per kilogram [mg/kg]) are as follows

- aluminum (9,300 mg/kg),
- beryllium (1 3 mg/kg),
- cadmium (3 6 mg/kg),
- copper (9 6 mg/kg);
- mercury (0 45 mg/kg),
- manganese (110 mg/kg),
- potassium (1,100 mg/kg),
- vanadium (23 mg/kg),
- arsenic (2 4 mg/kg),
- calcium (4,900 mg/kg),
- chromium (8 4 mg/kg),
- iron (12,000 mg/kg),
- magnesium (1,800 mg/kg),
- nickel (19 mg/kg),
- lead (570 mg/kg), and
- zinc (30 mg/kg)

The data presented in Tables 2-1 and 2-2 indicate that Tank #4 is a source of contaminants to the subsurface environment

Between November 1986 and December 1987 ground water samples were collected from Well 44-86 (Figure 2-1), hydraulically cross-gradient from the tanks, and analyzed for TCA, TCE, and MeCl TCA was not detected in three out of five samples In one sample, TCA was found above the detection limit, but greater than one order of magnitude lower than the

maximum contaminant level of 0 2 mg/L In the other sample, TCA was found at a concentration less than the analytical detection limit (Rockwell, 1988) TCE was not detected in any of the samples MeCl was not detected in one of the two samples analyzed MeCl was found at a concentration less than the analytical detection limit and was also detected in a blank The presence of other contaminants in ground water from Well 44-86 (1,1-dichloroethene, tetrachloroethene, and chloroform) may be indicative of a contamination source other than Tank #4 (Rockwell, 1988)

2.4.4 Historical Releases to the Environment

There are documented increases in the level of material in Tank #4 due to ground water entering through a suspected breach in the tank The breach, along with spills associated with overfilling any and all of the tanks throughout their history, is a source of contamination to the subsurface The amount of fuel oil released by these spills is unknown (Rockwell, 1988)

In November 1977, a leak in an underground transfer pipe near Tank #4 was discovered when approximately 600 gallons of No 6 fuel oil was recovered from the sewage treatment plant The total amount of oil released is unknown The oil-contaminated soil encountered during excavation to repair the pipe was disposed in the RFETS sanitary landfill (Rockwell, 1988).

On February 6, 1989, the level indicator in either Tanks #1 or #2 failed while the tank was being filled (it is unknown as to which tank it was) Approximately 500 gallons of No 6 fuel oil were released to the immediate area and the street On February 10, 1989, 50 gallons were released because valves were left open On July 29 and 30, 1989, 1,700 gallons were released to the environment Documentation detailing the cause of this release was not found (DOE, 1992b)

2.4.5 Potential for Contaminant Migration

The potential for contaminant migration remains high due to (1) the presence of two underground tanks suspected to be breached, (2) the probability that water in Tank #4 has been impacted by oil/sludge in the tank, (3) the presence of oil-phase material remaining in Tank #3, (4) the possibility that Tank #3 may be breached due to its age and the presence of water in the tank, (5) the potential that historical cross-pumping between Tanks #3 and #4 has occurred, and (6) Tank #4, a suspected breached tank, may develop additional leaks Because of the fluctuating water table and the fact that the tanks' tops are four feet BGS, ground water can continue to enter the tanks, become contaminated, and subsequently exit the tanks into the subsurface

2.5 NATIONAL PRIORITIES LIST STATUS

RFETS was proposed for inclusion on the National Priorities List on October 15, 1984, pursuant to Section 105 of CERCLA, 42 USC §9605, and was finalized on September 21, 1989 Accelerated response actions are being planned pursuant to the proposed 1994 IAG revision and 40 CFR 300 415 of the NCP

2.6 OTHER ACTIONS TO DATE

This section presents the previous, current, and future actions for Tanks #3 and #4 The previous actions are only briefly summarized here, since they were described above in Section 2 4

2.6.1 Previous Actions

Previous actions at the site resulted from the discovery of oil-like material in the fence post holes excavated near Tank #4 in 1986 These actions included (1) taking Tanks #3 and #4

out of service, (2) removing the contents of Tank #4, (3) excavating an observation trench east of and adjacent to the four tanks, (4) drilling four boreholes around the perimeter of Tank #4, (5) collecting and analyzing soil samples from each of the boreholes, and (6) collecting and analyzing samples of the material in Tank #4

2.6.2 Current Actions

Currently, an EG&G subcontractor is contracted to conduct the surficial soil sampling at IHSS 129 The scope of work for the surficial soil sampling program is defined in the approved Final Phase I RFI/RI Work Plan for OU10 (DOE, 1992)

2.6.3 Future Actions

Future actions include (1) conducting subsurface soil sampling to better define the extent of contamination, (2) completing removal of the tanks (described in Section 4 0), and (3) incorporating the results of the action into the Phase I RFI/RI and future activities and/or applicable closure requirements for OU10 The Sampling and Analysis Plan for conducting the subsurface, post-excavation soil sampling, and waste characterization will be submitted under separate cover in accordance with the PAM implementation schedule provided in Attachment 1

2.7 FEDERAL, STATE, AND LOCAL AGENCIES ROLE

The EPA, CDPHE, and local agencies have oversight and enforcement authority under RCRA and CERCLA The main vehicle by which this authority is implemented is through the IAG, its proposed amendments, and the RFCA (in the future) The EPA and CDPHE have provided suggestions for developing this PAM Implementation of the accelerated response action will be initiated upon approval of the PAM by the EPA and CDPHE

3.0 POTENTIAL RISKS TO PUBLIC HEALTH AND ENVIRONMENT

Actual or threatened releases of VOCs, semi-VOCs, and TPH present in the subsurface soil in the vicinity of the tanks, if not addressed by implementing the accelerated response action, present a potential risk to public health, welfare, or the environment as defined in the NCP In addition, the high potential for continued contaminant migration to the subsurface environment poses further potential risks to human and environmental receptors

Future activities associated with the accelerated response action may cause physical hazards These hazards include cave-in and physical obstruction to excavation and construction associated with the tanks, miscellaneous piping, metal straps, and ancillary equipment

4.0 PROPOSED ACTION

This section provides a description of the proposed action, its technical feasibility and implementability, ARARs, performance standards, consistency with long-term remedial objectives, waste management considerations, draft PAM implementation schedule, and anticipated PAM completion date.

4.1 PROJECT DESCRIPTION

The proposed action includes (1) subsurface soil sampling to better define the extent of contamination, (2) removal of both tanks, piping, fixtures, metal straps, and ancillary equipment, (3) containerization of encountered water and oil-phase liquid (if present), decon water, and the tanks' contents, (4) excavation, temporary staging (within the AOC), and relocation of all excavated soil (except for soil saturated with oil-phase liquid), (5) decontamination and packaging of the tanks, piping, fixtures, metal straps, and ancillary equipment; and (6) final disposition of the tanks, piping, metal straps, ancillary equipment, tanks' contents, encountered oil-phase liquid, and water associated with this project The shoring supports and concrete saddles will remain in place All soil saturated with oil-phase liquid will be containerized and disposed of off-site at an approved facility Efforts will be made to return all excavated soil (except that saturated with oil-phase liquid) to its original location to be remediated, if necessary, under the final ROD for OU10 This accelerated response action will be accomplished in two phases the pre-construction phase and the construction phase These two phases are discussed in detail below

4.1.1 Preconstruction Phase Activities

Activities in the pre-construction phase consist of (1) conducting screening for radionuclide contamination to provide safety for workers conducting the action, (2) completing subsurface soil sampling to better define the extent of contamination, (3) sampling and analyzing the

contents of both tanks, and (4) obtaining, preparing, and submitting all required CDPHE/RFETS notifications and permits pertaining to this project As indicated in Section 2 6 3, the details of the soil sampling activities (for subsurface, post-excavation, and waste characterization samples) are described in a Sampling and Analysis Plan, currently under development

4.1.2 Construction Phase Activities

The construction phase of the proposed action is technically feasible, easily implementable, and includes the following tasks

- constructing a temporary security fence around the perimeter of the construction area for the safety of non-construction personnel,
- removing and containerizing the oil-phase, water-phase and sludge contents of the tanks,
- excavating the soil to expose the tanks, associated pipelines, and ancillary equipment making every effort to segregate the clean soil from that which may be contaminated, and generating vertical profiles of the excavated soil to assist in returning it back to its original location to be remediated (if necessary) under the OU10 ROD,
- field screening the soil and water in the excavation for the presence of VOCs using a photoionization detector (e g , HNu) for worker health and safety purposes,
- containerizing all water and oil-phase liquid encountered in the excavation, decon water, and the tanks' contents,

- removing the excavated soil and temporarily staging it within the AOC in 35 cubic yard roll-offs,

- containerizing the excavated soil saturated with oil-phase liquid (if encountered),

- decontaminating equipment and workers,

- decontaminating and packaging of the tanks and metal straps for off-site recycling (believed to be unlikely) or disposal,

- recycling or disposing (if recycling is not feasible) the sludge, oil-phase contents of the tanks, and oil-phase liquids encountered in the excavation,

- treating the water-phase contents of the tanks, the water encountered in the excavation, and decon water with an oil/water separator, an absorbent filter system, and a mobile GAC system (purchased for the project) on-site, afterwards, the water will be disposed of at the Building 374 Evaporator,

- packaging of the asbestos, miscellaneous piping, ancillary equipment, containerized soil, and other construction waste for off-site disposal at an approved facility,

- collecting post-excavation soil samples from the sidewalls of the excavation, from underneath the tanks, and where pipes have been removed,

- leaving the concrete saddles (used to ballast the tanks) and shoring supports (cut off six inches BGS) *in-situ* to be addressed as part of OU10 ROD, and

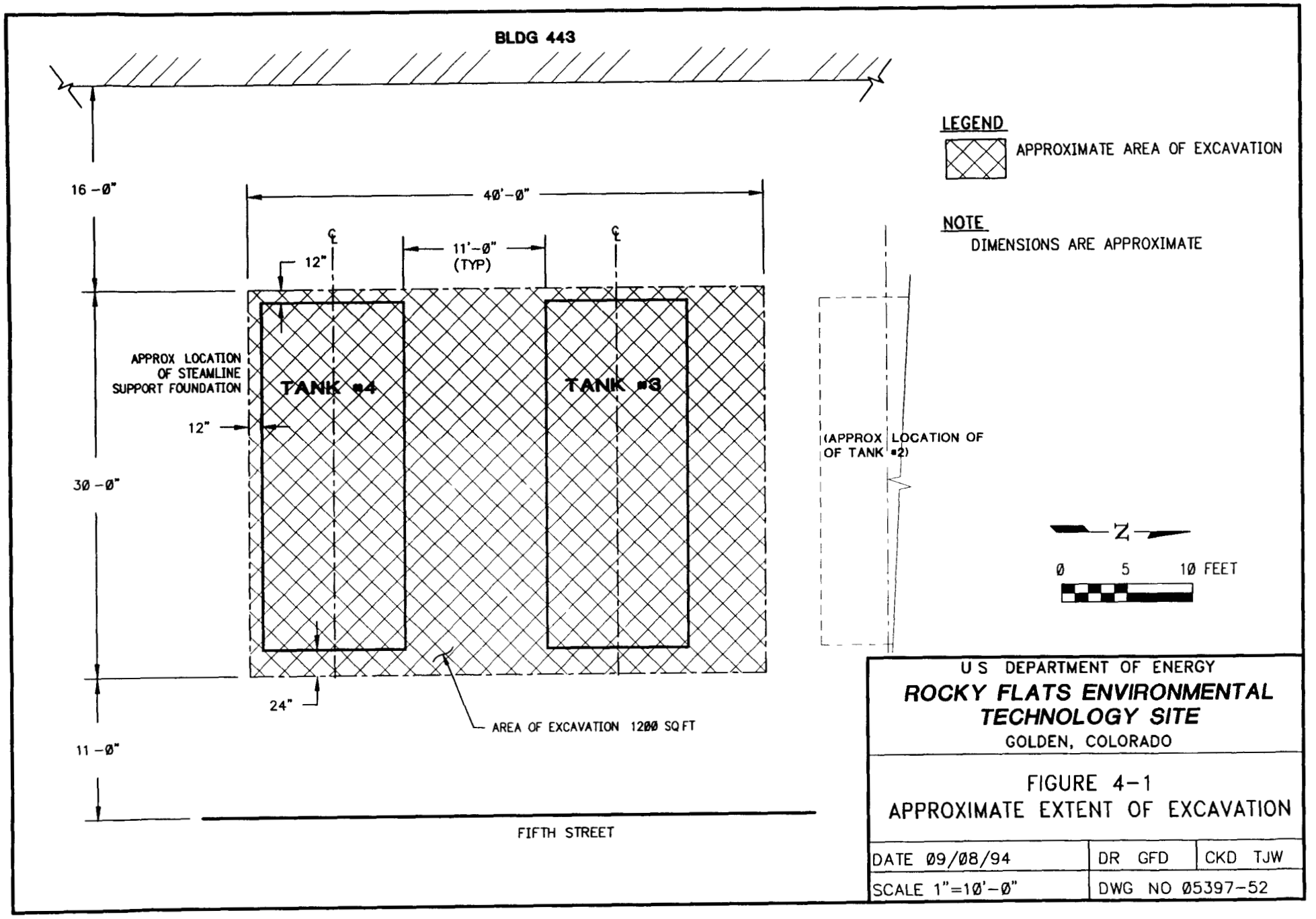
- reclaiming the site

All work will be conducted according to Occupational Safety and Health Administration (OSHA) requirements and according to approved industry standards as applicable Fugitive dust emissions will be mitigated during the tanks' excavation and removal

Uncertainty about the subsurface conditions will be reduced upon completion of screening and soil sampling activities Field decisions may be made as to the lateral and vertical extent of the excavation if unanticipated field conditions occur which alter the scope of work proposed in this PAM and other documents that will be prepared as part of implementing this PAM These field decisions will be made in consultation with the DOE Appropriate EPA and CDPHE staff will be verbally notified if field conditions warrant scope changes

Excavation activities require constructing temporary supports and shoring for the excavation, removing water entering the excavation, relocating utilities and infrastructure items (i e , electrical conduits, fences and sidewalks), and capping and/or rerouting steam and other pipes associated with Tanks #1 and #2 The shoring supports surrounding the excavation will be left *in-situ* and will be cut off to six inches BGS The maximum extent of the excavation is provided in Figure 4-1 The lateral extent of the excavation is anticipated to be 40 feet in the north-south direction (parallel to the Building 443 and Fifth Avenue) and 30 feet in the east-west direction. The vertical extent of the excavation is anticipated to be 15 feet BGS, which is below the water table

Post-excavation sampling will be conducted as follows Three soil samples will be collected from underneath each tank, one from each end, and one from the middle of the tank Soil samples will be collected every 50 feet along the excavated pipes and near fittings and joints based on visual inspection In addition, perimeter samples will be collected, one sample from each of the four excavation walls The perimeter samples will be obtained from either three feet above the bottom of the excavation or from one foot above the water table, if present, in


BLDG 443
LEGEND
APPROXIMATE AREA OF EXCAVATION
NOTE
DIMENSIONS ARE APPROXIMATE
16 -Ø"
40'-Ø"
℄
11'-Ø"
(TYP)
℄
12"
APPROX LOCATION
OF STEAMLINE
SUPPORT FOUNDATION
TANK #4
TANK #3
12"
(APPROX LOCATION OF
OF TANK #2)
30 -Ø"
N
Ø 5 10 FEET
24"
AREA OF EXCAVATION 1200 SQ FT
11 -Ø"
FIFTH STREET
U S DEPARTMENT OF ENERGY
ROCKY FLATS ENVIRONMENTAL
TECHNOLOGY SITE
GOLDEN, COLORADO
FIGURE 4-1
APPROXIMATE EXTENT OF EXCAVATION
DATE Ø9/Ø8/94
DR GFD
CKD TJW
SCALE 1"=10'-Ø"
DWG NO Ø5397-52

the excavation At least two samples of water entering the excavations will be collected and analyzed

Reclamation activities will include (1) returning the soils to their original location in the excavation, (2) covering the soil with clean fill to bring the excavation back to natural grade, (3) covering the excavated area (after its been brought to grade) with geotextile fabric and gravel, and (4) replacing all utilities and infrastructure items to their original operating condition

4.1.3 Technical Feasibility and Implementability

The proposed action is technically feasible and easily implementable The proposed action utilizes industry accepted and well-understood technologies for excavation, containerization, and final disposition of all of the items associated with the accelerated response action The proposed action will be completed by a fixed-price subcontractor with sufficient training to accomplish the accelerated response action Successful implementation relies on standard excavating equipment, transporting vehicles, and readily available materials and supplies It assumes that no radionuclides are detected above background in the field screening or subsurface sampling activities

4.2 Applicable or Relevant and Appropriate Requirements (ARARs) and Performance Standards

This proposed action consists of the removal of two tanks, piping, metal straps, and ancillary equipment The action will be conducted to attain compliance with ARARs to the extent practicable considering the exigencies of the situation and the scope of the response action Because the scope of this action is limited to removal of Tanks #3 and #4 and the associated source term, ARARs addressing soil and ground water contamination will not be addressed as part of this accelerated response action The final remedy associated with

OU10 will attain all ARARs, unless an ARAR waiver is approved by the lead agency ARARs and appropriate ARAR waivers will be documented in the OU10 ROD The following section presents a brief summary of the chemical-specific, action-specific, or location-specific ARARs that are specifically related to this accelerated response action

Chemical-specific ARARs are those which set concentration limits for individual chemicals for air emissions and soil standards There are no chemical-specific ARARs for tank removals

Action-specific ARARs apply to the use of specific technologies and practices such as excavation, surface impoundment or landfilling of hazardous waste The Federal and Colorado action-specific ARARs determined to be specifically related to this accelerated response action include (1) the CHWA (CRS §§ 25-15-101 to -313 and 6 CCR §§ 1007-2 and -3) for managing hazardous waste, and (2) the Colorado Air Quality Control Act (CRS §§ 25-7-101 to -609 and 5 CCR §§ 1001-3, -5, -8, -10) and the Clean Air Act (40 CFR 50 *et seq* and USCA App 2 §§ 1 *et seq*) for controlling air emissions In addition, the action will be in compliance with applicable DOE Orders

Finally, location-specific ARARs relate to activities that are restricted from occurring in certain areas such as flood plains or wetlands No ARARs were identified for this proposed action

With respect to National Environmental Policy Act (NEPA) compliance, the RFETS NEPA Compliance Committee must review the accelerated response action request for a categorical exclusion and the completed environmental checklist review form Afterwards, they must determine whether further NEPA documentation requirements are necessary

Performance standards are intended to provide a measure with which to validate whether the intent of a proposed action has been accomplished and, in effect, establish an action goal Performance standards are not intended to delineate how an action is to be staged or carried out The performance standard for Tanks #3 and #4 response action shall include (1)

remove the tanks, (2) remove physical hazards associated with the presence of the tanks, metal straps, piping, and ancillary equipment, and (3) protect workers from chemical and physical hazards in accordance with the OSHA standards (29 U S C. §§ 651 et seq and 29 CFR §§ 1900 *et seq*)

This proposed action will require removal of Tanks #3 and #4, which are sources of environmental contamination Physical hazard removal will be accomplished when both tanks, piping, ancillary equipment, and metal straps have been removed off-site, the excavation shoring supports and the concrete saddles will remain in place

Worker protection will be achieved through sufficient precautions being taken to prevent worker exposures to contamination levels exceeding OSHA/National Institute of Occupational Safety and Health (NIOSH) Short-Term Exposure Limits for site contaminants Meeting this standard may require air monitoring and personal protective equipment used in accordance with the Health and Safety Plan, currently under preparation

4.3 Consistency with Long-Term Remedial Objectives

The accelerated response action is consistent with long-term remedial objectives for OU10 The proposed action will permanently reduce risk to human and ecological receptors, contamination in the subsurface, and the potential for contaminant migration Specifically, characterizing and removing the source-term contamination resulting from this action supports the long-term remediation objectives for RFETS and will provide important data for further evaluation of the IHSS and for the baseline risk assessment, an objective of the OU10 RFI/RI However, as noted above, this source-term accelerated response action does not constitute the final remedy for the IHSS

4.4 Waste Management

The management of waste is an important consideration The waste generated from this action does not contain radionuclide constituents above background levels Waste to be managed includes: the contents of the tanks, decon water, water encountered in the excavation, the tanks, miscellaneous pipes, ancillary equipment, metal straps, containerized soil, and construction waste.

The approximate contents of Tank #4 consist of 9,040 gallons of water-phase liquids containing petroleum products, 311 gallons of oil/sludge, and spent solvents The approximate contents of Tank #3 are 21 gallons of oil-phase liquid, 10,707 gallons of water-phase material, and 7,300 gallons of sludge The sludge, oil-phase contents of the tanks, and any oil-phase liquid encountered in the excavation will be sent off-site for recycling or disposal, if recycling is not feasible The water-phase contents of the tanks, the water encountered in the excavation, and all decon water will be treated with an oil/water separator, an absorbent filter system, and mobile GAC system (purchased for this project) on-site Afterwards, the water will be disposed of at the Building 374 Evaporator Since this accelerated response action is being conducted under the CERCLA and treatment will occur on-site, the DOE claims an exemption from all federal, state, or local permitting requirements applicable to this accelerated response action

Subsequent to decontamination, the tanks and metal straps will be packaged and sent off-site for recycling (which is not likely) or disposal The miscellaneous piping, asbestos, ancillary equipment, containerized soil, and other construction waste will be packaged appropriately for off-site disposal at an approved facility Prior to disposal or recycling, all waste streams will be managed in accordance with all applicable hazardous waste management requirements All packaging, containers, and transportation of materials will be completed in accordance with the Colorado and U.S Department of Transportation (DOT) requirements

4.5 Implementation Schedule and Completion Date

The draft implementation schedule for the PAM is provided in Attachment 1 The proposed action is expected to begin with the agency approval of this PAM in January 1995, and subsequent project authorization by the DOE in June 1995 A fixed-price contract will be awarded in June 1995. Mobilization and construction will begin in August 1995 The project is estimated to be completed in October 1995 A final Completion Report will be prepared in December 1995.

5.0 EXPECTED CHANGE IN THE SITUATION SHOULD THE ACTION BE DELAYED OR NOT TAKEN

If the tanks are not removed according to this PAM, it is anticipated that the contents of Tank #4 will continue to contaminate the surrounding soil and migrate into the environment The potential exists for Tank #3, also suspected to be breached, to result in a scenario similar to Tank #4 Additionally, the nature and extent of contamination under Tank #4 is unknown and cannot be determined until the tank is removed

6.0 REFERENCES

CDPHE, 1994. Storage Tank Facility Owner/Operator Guidance Documents Colorado Department of Health, Hazardous Materials and Waste Management Division April 15, 1994

DOE, 1990. Population, Economic, and Land Use Database for the Rocky Flats Plant Golden, Colorado. August 1990.

DOE, 1992a. Final Phase I RFI/RI Work Plan, Rocky Flats Plant Other Outside Closures (Operable Unit No 10) Volume I - Text, and Volume II - Appendices Golden, Colorado May 1992

DOE, 1992b Final Historical Release Report for the Rocky Flats Plant Volume I - Text and Volume II - Appendices. Golden, Colorado June 1992

DOE, 1994 Programmatic Risk-Based Preliminary Remediation Goals U S Department of Energy, Rocky Flats Plant, Golden, Colorado July 1994

EPA, 1989 Superfund LDR Guide #5, Determining When Land Disposal Restrictions (LDRs) are Applicable to CERCLA Response Actions U S Environmental Protection Agency, Office of Solid Waste and Emergency Response Directive 9347 3-05FS July

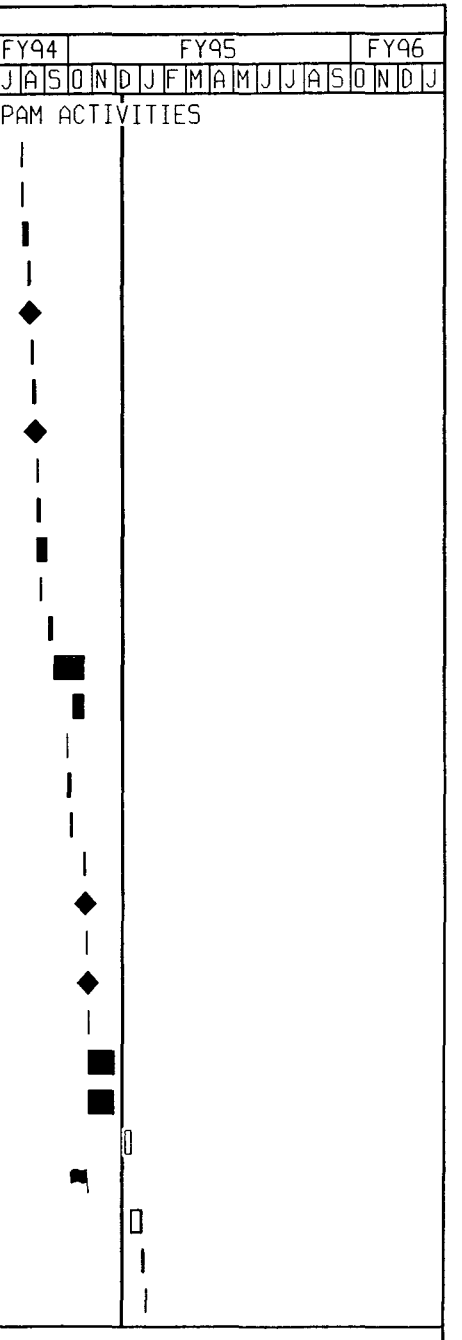
Rockwell, 1988 Closure Plan Building 443 No 4 Fuel Oil Tank U S Department of Energy Rocky Flats Plant Golden, Colorado April 5, 1988

Slaten, 1994 Letter dated June 23, 1994 from Steven W Slaten, IAG Coordinator for DOE to Martin Hestmark, EPA Region VIII, and Gary Baughman, CDH 94DOE07111

ATTACHMENT 1

DRAFT IMPLEMENTATION SCHEDULE FOR THE BUILDING 443 TANK #3 AND #4 PROPOSED ACTION MEMORANDUM

ACTIVITY ID	ACTIVITY DESCRIPTION	REM DUR	RESP	EARLY START	EARLY FINISH
1245101000	EVALUATE UST vs RCRA vs CERCLA	0	EG&G MGMT	2AUG94A	2AUG94A
1245101010	TERMINATE CURRENT SOLICIATION (FP CONSTRUCTION)	0	JENNINGS	3AUG94A	3AUG94A
1245101020	REVIEW PROPOSED ACTION MEMORANDUM (PAM) PROCESS	0	JENNINGS	4AUG94A	9AUG94A
1245101030	INITIATE PAM STATEMENT OF WORK	0	JENNINGS	10AUG94A	12AUG94A
1245101040	STATEMENT OF WORK FOR PAM TO SUBCONTRACTOR	0	JENNINGS		12AUG94A
1245101045	SUBCONTRACTOR PROPOSAL ON PAM	0	JENNINGS	15AUG94A	16AUG94A
1245101050	NEGOTIATE PAM CONTRACT	0	JENNINGS	16AUG94A	18AUG94A
1245101060	AWARD PAM CONTRACT	0	JENNINGS		19AUG94A
1245101065	KICK-OFF MEETING FOR PAM	0	JENNINGS	22AUG94A	22AUG94A
1245101067	PROJECT INFORMATION TO KAISER	0	JENNINGS	22AUG94A	24AUG94A
1245101070	RESEARCH & DEVELOPMENT OF PAM	0	KAISER	22AUG94A	2SEP94A
1245101075	OUTLINE OF PAM	0	KAISER	26AUG94A	26AUG94A
1245101077	CONSOLIDATION OF PAM DATA	0	KAISER	6SEP94A	9SEP94A
1245101080	REVIEW/COMMENT ON PAM (EG&G/DOE)	0	JENNINGS	12SEP94A	19OCT94A
1245101081	ADDITIONAL AGENCY REVIEW	0	SARTER	7OCT94A	19OCT94A
1245101083	DEVELOP BUDGET/SCHEDULE FOR FY95 KAISER SUPPORT	0	JENNINGS	29SEP94A	29SEP94A
1245101085	INITIATE PR FOR FY95 ICF KAISER CONTRACT	0	JENNINGS	30SEP94A	30CT94A
1245101088	NEGOTIATE FY95 CONTRACT WITH ICF KAISER	0	JENNINGS	4OCT94A	5OCT94A
1245101090	INCORPORATE PAM COMMENTS	0	KAISER	20OCT94A	21OCT94A
1245101110	ISSUE DRAFT OF PAM FROM KAISER TO EG&G	0	KAISER		21OCT94A
1245101140	REPRODUCTION OF DRAFT PAM	0	KAISER	24OCT94A	24OCT94A
1245101160	RECEIPT OF PAM FINAL DRAFT	0	JENNINGS		25OCT94A
1245101165	DISTRIBUTION OF PAM TO READING ROOMS	0	FORBES	26OCT94A	26OCT94A
1245101170	PUBLIC REVIEW/COMMENT OF PAM (30 DAY)	0	DOE	27OCT94A	29NOV94A
1245101171	RESEARCH OF SAMPLE ANALYSIS PLAN	0	KAISER	27OCT94A	28NOV94A
1245101172	DEVELOPMENT OF SAMPLE ANALYSIS PLAN	5	KAISER	13DEC94	19DEC94
1245101173	PUBLIC MEETING - PROPOSED ACTION MEMORANDUM	0	DOE	27OCT94A	
1245101174	REVIEW AND COMMENT OF SAMPLE ANALYSIS PLAN (SAP)	5	KAISER	20DEC94	3JAN95
1245101175	INCORPORATE SAMPLE ANALYSIS PLAN (SAP) COMMENTS	3	KAISER	4JAN95	6JAN95
1245101176	REPRODUCTION OF THE SAMPLE ANALYSIS PLAN (SAP)	1	KAISER	9JAN95	9JAN95



Plot Date 9DEC94
Data Date 9DEC94
Project Start 2AUG94
Project Finish 21DEC95

Activity Bar/Early Dates
Critical Activity
Progress Bar
Milestone/Flag Activity

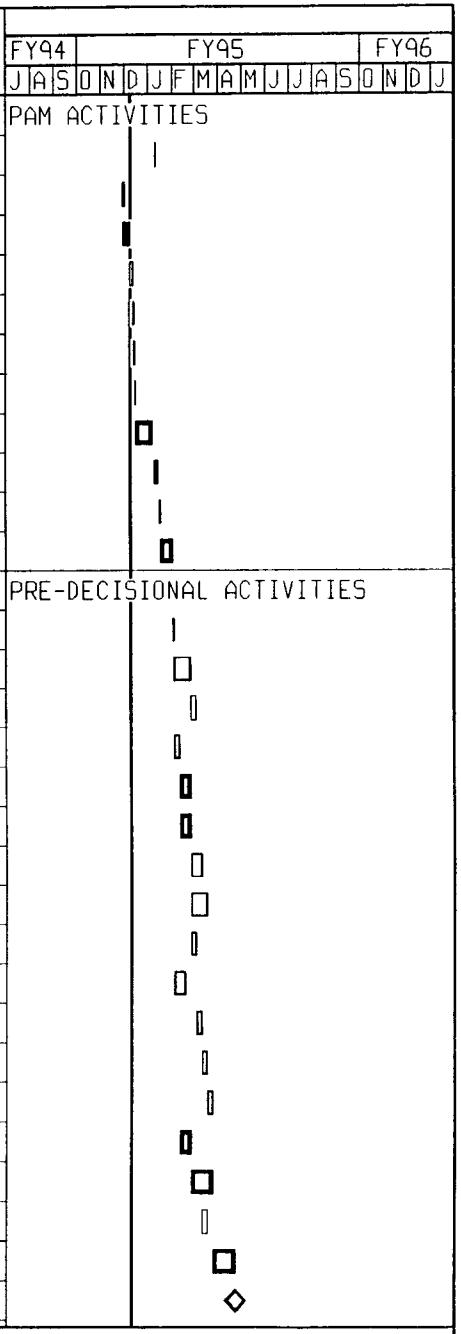
TRVA

Sheet 1 of 3

ACCELERATED CLEAN-UP ACTIVITIES
BLDG TANK RMVL & SOIL REM IHSS #129
FIXED PRICE ACCELERATED SCHEDULE

Date	Revision	Checked	Approved

ACTIVITY ID	ACTIVITY DESCRIPTION	REM DUR	RESP	EARLY START	EARLY FINISH
1245101178	ISSUE SAMPLE ANALYSIS PLAN (SAP)	1	KAISER	10JAN95	10JAN95
1245101180	RECEIVE COMMENTS FROM PUBLIC/AGENCY REVIEW	0	DOE	29NOV94A	30NOV94A
1245101190	DISPOSITION COMMENTS FROM PUBLIC/AGENCY REVIEW	0	JENNINGS	30NOV94A	8DEC94A
1245101195	INCORPORATE COMMENTS FROM PUBLIC/AGENCY REVIEW	2	KAISER	9DEC94A	12DEC94
1245101200	REPRODUCTION OF FINAL PAM	1	KAISER	13DEC94	13DEC94
1245101205	TRANSMITTAL OF PAM - EG&G TO DOE	1	JENNINGS	14DEC94	14DEC94
1245101206	TRANSMITTAL OF PAM - DOE TO AGENCY	1	SARTER	15DEC94	15DEC94
1245101210	CDPHE/EPA REVIEW OF FINAL PAM	10	SARTER	16DEC94	6JAN95
1245101215	INCORPORATE AGENCY COMMENTS INTO PAM	5	KAISER	9JAN95	13JAN95
1245101220	CDPHE/EPA BRIEFING/APPROVAL OF FINAL PAM	1	SARTER	16JAN95	16JAN95
1245101230	PAM SCHEDULE CONTINGENCY	12	JENNINGS	17JAN95	1FEB95
1245101240	INITIATE PROJECT - PREDECISIONAL ACTIVTIES	1	JENNINGS	2FEB95	2FEB95
1245101243	WSRIC DEVELOPMENT	15	FROST	3FEB95	23FEB95
1245101246	WSRIC APPROVAL	5	FROST	24FEB95	2MAR95
1245101250	SCOPE DEVELOPMENT	5	JENNINGS	3FEB95	9FEB95
1245101260	REVISE PROJECT SCHEDULE	10	TRUJILLO	10FEB95	23FEB95
1245101270	PREPARE SCOPE ESTIMATE - FIXED PRICE	10	WOLFE	10FEB95	23FEB95
1245101310	REVISE CORRECTIVE ACTION PLAN	10	PETERSON	24FEB95	9MAR95
1245101320	DEVELOP SAMPLING ANALYSIS PLAN	15	KAISER	24FEB95	16MAR95
1245101330	REVISE WORK PACKAGE	5	JENNINGS	24FEB95	2MAR95
1245101332	WRITE STATEMENT OF WORK FOR FIXED PRICE CONTRACT	10	DRAKE	3FEB95	16FEB95
1245101335	EG&G - ER BCP BOARD	5	JENNINGS	3MAR95	9MAR95
1245101340	DOE - ER BCP BOARD	5	JENNINGS	10MAR95	16MAR95
1245101343	PCCB - REVIEW/APPROVAL	5	JENNINGS	17MAR95	23MAR95
1245101350	EG&G REVISED NEPA DOCUMENTATION	10	KNAPP	10FEB95	23FEB95
1245101360	DOE REVISED NEPA DOCUMENTATION	20	SARTER	24FEB95	23MAR95
1245101400	REVIEW CORRECTIVE ACTION PLAN	5	JENNINGS	10MAR95	16MAR95
1245101430	PRE-DECISIONAL SCHEDULE CONTINGENCY	20	JENNINGS	24MAR95	21APR95
1245101440	AUTHORIZATION OF PROJECT	0	ANDERSON		21APR95



Plot Date 9DEC94
Data Date 9DEC94
Project Start 2AUG94
Project Finish 21DEC95

Activity Bar/Early Dates
Critical Activity
Progress Bar
Milestone/Flag Activity

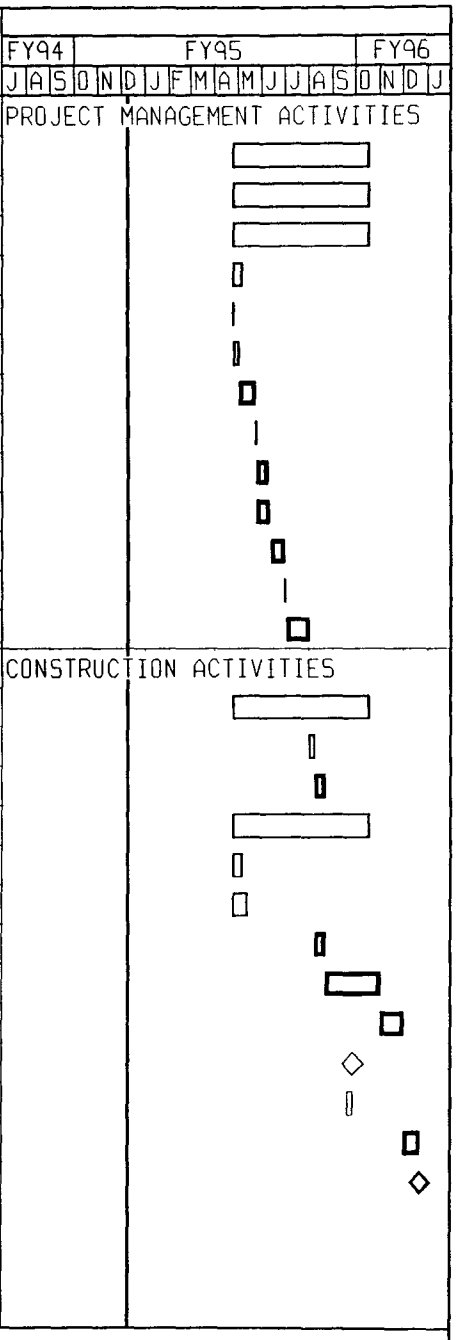
TRVA

Sheet 2 of 3

ACCELERATED CLEAN-UP ACTIVITIES
BLDG TANK RMVL & SOIL REM IHSS #129
FIXED PRICE ACCELERATED SCHEDULE

Date	Revision	Checked	Approved

ACTIVITY ID	ACTIVITY DESCRIPTION	REM DUR	RESP	EARLY START	EARLY FINISH
1245102000	PROJECT MANAGEMENT (LEVEL OF EFFORT)	124	JENNINGS	24APR95	17OCT95
1245102010	COST ESTIMATING (LEVEL OF EFFORT)	124	WOLFE	24APR95	17OCT95
1245102020	PROJECT SCHEDULING (LEVEL OF EFFORT)	124	COPPFER	24APR95	17OCT95
1245102025	OPERATIONAL READINESS REVIEW	10	SCHRICK	24APR95	5MAY95
1245102030	SUBMIT SOW & PURCHASE REQ TO PROCURMENT	1	DRAKE	24APR95	24APR95
1245102040	PROCUREMENT PREP FOR SOLICITATION	5	HORVATH	25APR95	1MAY95
1245102050	SOLICITATION FOR BID	15	HORVATH	2MAY95	22MAY95
1245102060	BID OPENING	1	HORVATH	23MAY95	23MAY95
1245102070	HEALTH & SAFETY PLAN REVIEW & APPROVAL	10	DYRE	24MAY95	7JUN95
1245102080	PRE-CONTRACT AWARD	12	HORVATH	24MAY95	9JUN95
1245102090	DOE APPROVAL OF CONTRACT	14	SARTER	12JUN95	29JUN95
1245102095	NOTICE TO PROCEED/AWARD CONTRACT	1	HORVATH	30JUN95	30JUN95
1245102097	PROCUREMENT SCHEDULE CONTINGENCY	20	HORVATH	3JUL95	31JUL95
1245103000	CONSTRUCTION MANAGEMENT (LEVEL OF EFFORT)	124	COLES	24APR95	17OCT95
1245103003	MARK UTILITIES	5	COLES	1AUG95	7AUG95
1245103006	SURFICIAL SOIL SAMPLING	10	CONTRACTOR	8AUG95	21AUG95
1245103010	CONSTRUCTION SUPPORT (LEVEL OF EFFORT)	124	COLES	24APR95	17OCT95
1245103020	DEVELOP IWCP - C-PACKAGE	10	HAVEN	24APR95	5MAY95
1245103025	EXCAVATION PERMIT	15	LABORDE	24APR95	12MAY95
1245103030	MOBILIZATION	10	CONTRACTOR	8AUG95	21AUG95
1245103040	CONSTRUCTION	50	CONTRACTOR	22AUG95	31OCT95
1245103045	CONSTRUCTION SCHEDULE CONTINGENCY	20	JENNINGS	1NOV95	30NOV95
1245103050	TANKS REMOVED FROM RFP	0	CONTRACTOR	27SEP95	
1245103052	CONFIRMATORY SAMPLING	5	CONTRACTOR	20SEP95	26SEP95
1245103055	COMPILE REPORT	15	JENNINGS	1DEC95	21DEC95
1245103060	PROJECT COMPLETION	0	JENNINGS		21DEC95



Plot Date 9DEC94
Data Date 9DEC94
Project Start 2AUG94
Project Finish 21DEC95

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Activity Bar/Early Dates
Critical Activity
Progress Bar
Milestone/Flag Activity

TRVA

Sheet 3 of 3

ACCELERATED CLEAN-UP ACTIVITIES
BLDG TANK RMVL & SOIL REM IHSS #129
FIXED PRICE ACCELERATED SCHEDULE

Date	Revision	Checked	Approved